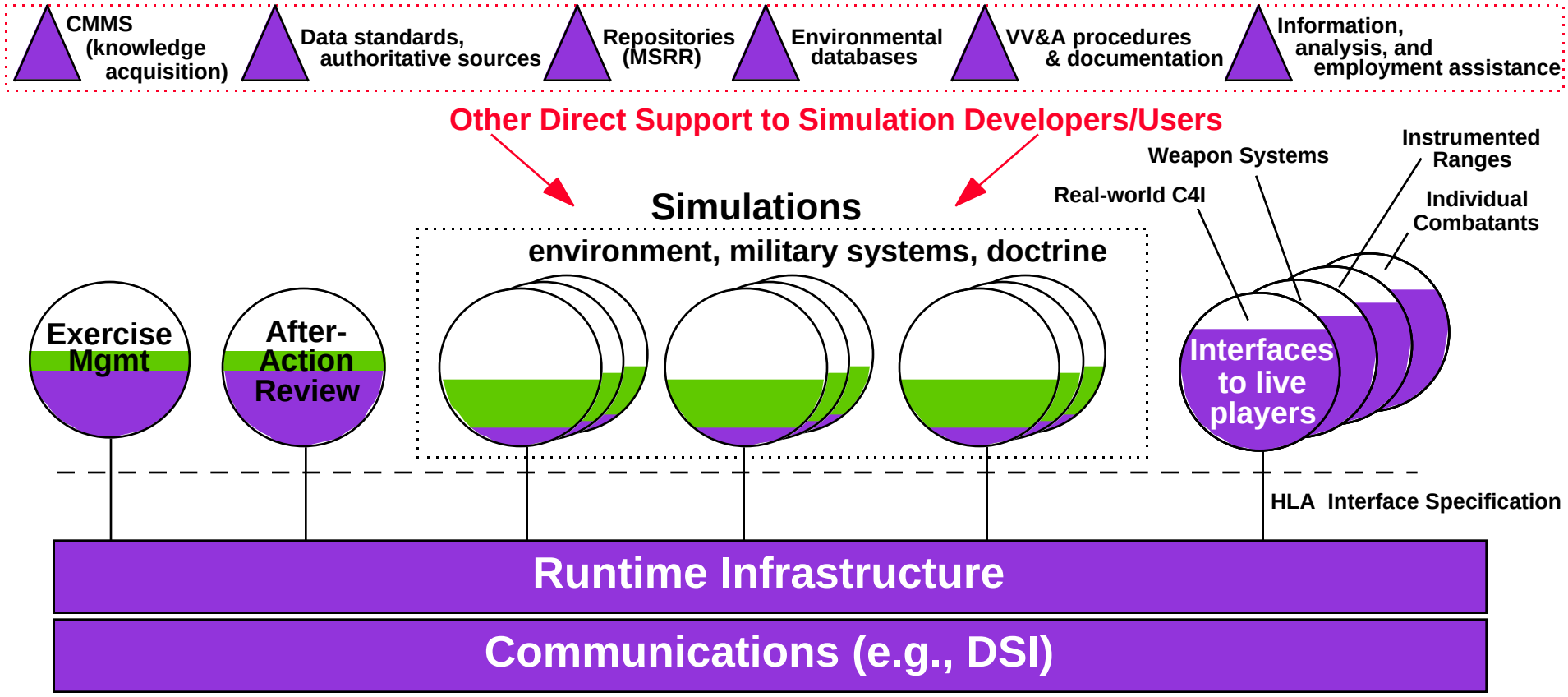
Tomorrow's Simulations will be Built on Reusable Elements

DMSO



Key:

- developed once, reused across all DoD simulation systems
- developed once, reused across a simulation domain
- unique

Modeling and Simulation Resource Repository *(MSRR)* - What is it?

DMSO

- A distributed network of resources
- Organized by information domains
- Maintained by the resource owners
- Linked by WWW protocols
- Providing a complete service infrastructure
  - Registration
  - Help Desk
  - “Virtual Card Catalog”
  - “Registered Resource Requests”
  - Documentation
  - Training
  - Visualization
- Classified and unclassified systems

MSRR Goal

DMSO

- **Support pull, plug, and play through responsive, timely access to authoritative sources of:**
  - **actual models and simulations**
  - **software (RTI, other common use products)**
  - **metadata and data models (including SOMs)**
  - **standards**
  - **Instance databases**
  - **Use and VV&A histories**
  - **CMMS**
- **Eliminate duplication**

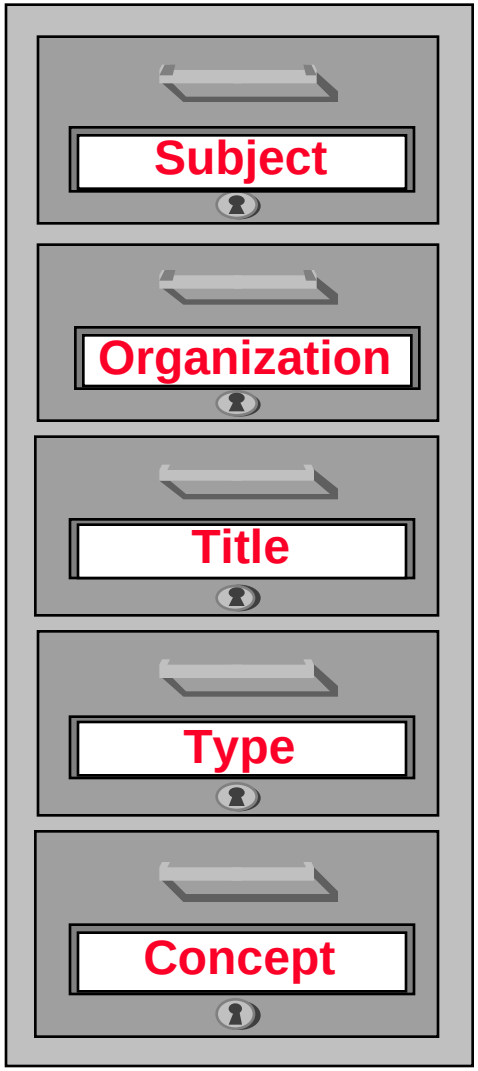
MSRR: Organized by IDs Logically Grouping Available M&S Resources

DMSO

VIRTUAL CARD CATALOG:

ORGANIZED BY:

- **INFORMATION DOMAINs WITH**
- **VIEWS THAT PROVIDE:**
  - **IDENTIFICATION &**
  - **LOCATION OF M&S RESOURCES USING:**
- **SEARCH ENGINES AND**
- **DATABASE QUERIES**



M&S RESOURCES:

- **FOM/SOM LIBRARIES**
- **PROTOCOL CATALOG**
- **CMMS**
- **CUSTOM RESOURCE REPOSITORIES**
- **SPECIALIZED INSTANCE DATABASES**
- **REGISTRATION DATABASE**
- **M&S DIRECTORIES**
- **JADE++**
- **MSRR DOCUMENTATION**
- **FAQs**
- **NEWSGROUPS**

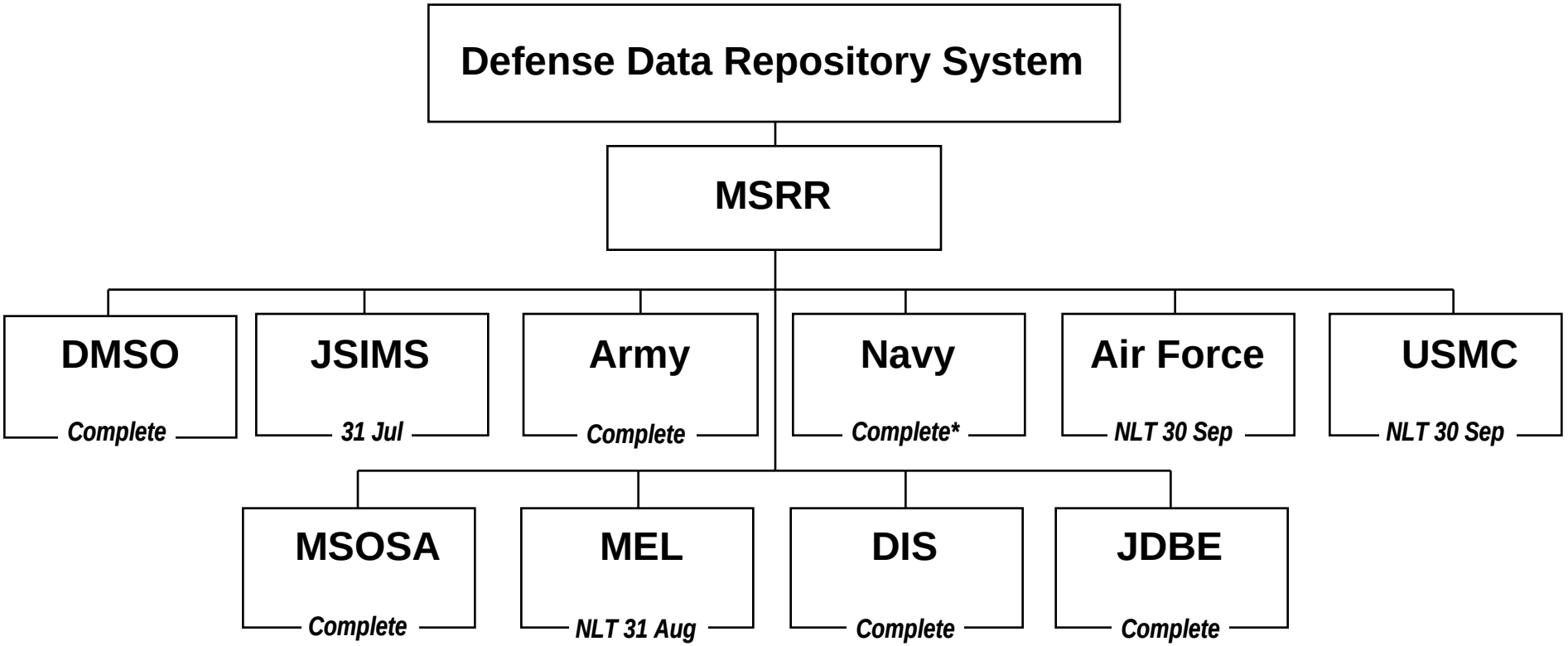
Maintenance by Resource Owners

DMSO

- MSRR links to non MSRR resources and MSRR resources maintained by owners who:
  - Provide/update resources under configuration control
  - Provide/update documentation
  - Provide/update quality criteria
  - Provide/update release and legal instructions
  - Provide/update security instructions
  - Provide distribution options
  - Distribute resources to consumers

MSRR Node Status
(End of FY96 Snapshot)

DMSO

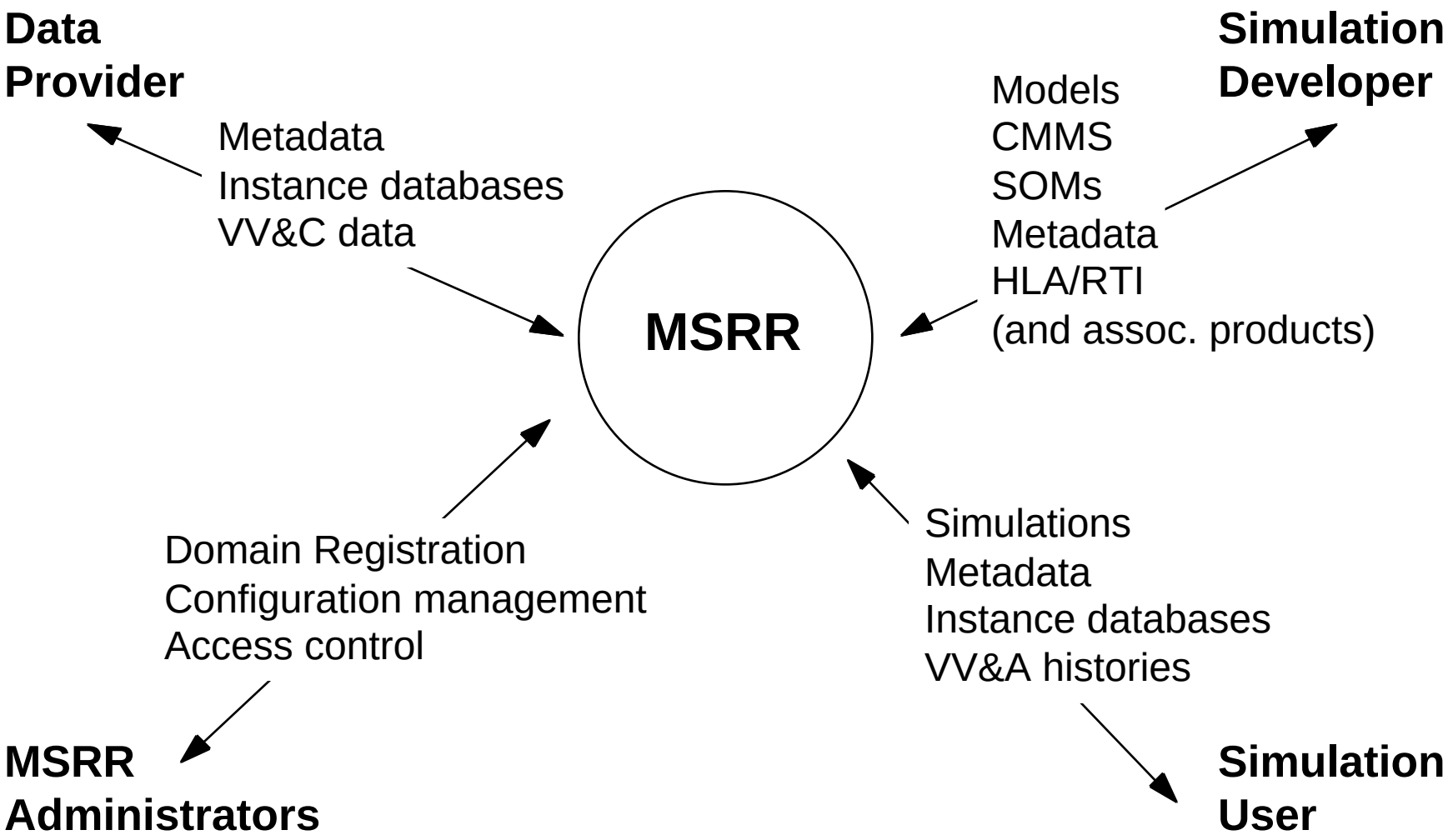


Initial build of MSRR specific software will be on line 30 Sep 96

Except for the classified node

MSRR Functionality

DMSO



MSRR Service Infrastructure

DMSO

The MSRR provides the following services

- **Registration**
  - **Users (Owners and Consumers)**
  - **M&S Resources**
- **Help Desk**
  - **Support personnel**
  - **FAQs**
  - **News groups**
- **"Virtual Card Catalog"**
  - **Identification and location**
  - **Using search engines and registrar database queries**
- **Registered Resource Requests**
  - **Standard and customized resource ordering**
  - **From sources such as MEL, ADRS, FOM library**

continued

MSRR Service Infrastructure

DMSO

- Documentation
  - Operations Guide with appendices which include:
    - Node Administrator's Guide
    - IDC Guide
    - Node Installation procedures
    - Registrar Procedures
    - Style Guide
  - User's Guide with appendices which include guidelines for:
    - Registration
    - Security & Releasibility
    - Quality Criteria
  - Configuration Management Plan
- Training
  - Node Installation
  - Node Administration
  - Information Domain Analysis & Organization
  - Configuration Management

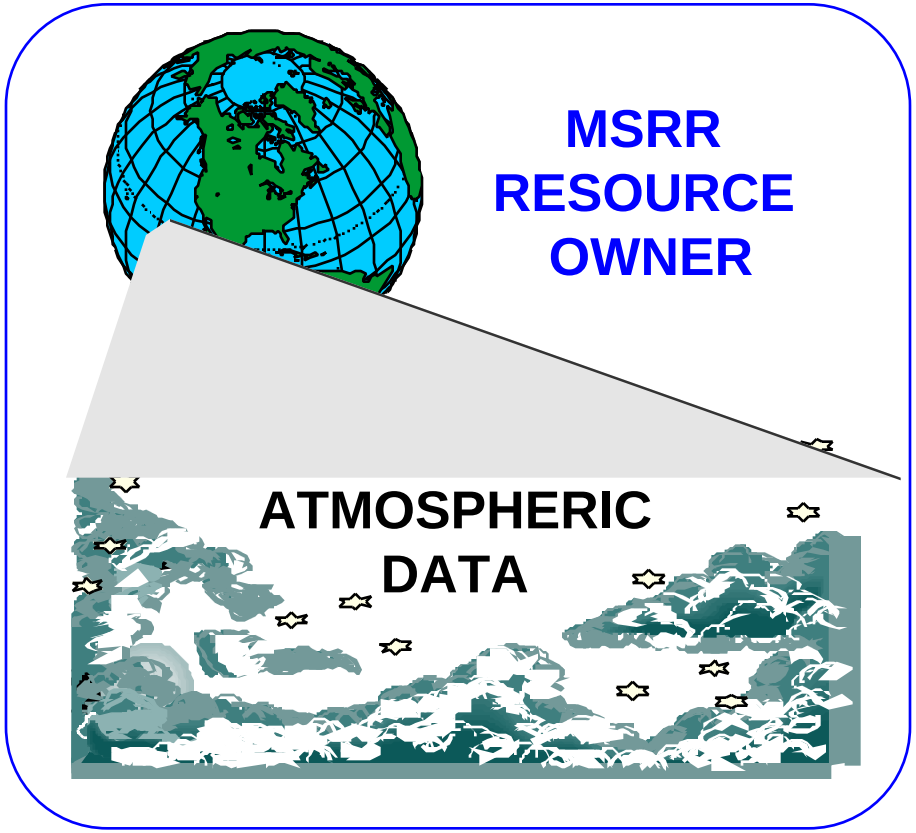
continued

MSRR Service Infrastructure

DMSO

- Visualization
  - Browsers
  - Viewers
  - Data reformatters
  - Graphical interfaces

MSRR USER



MSRR Registration

DMSO

The MSRR provides centralized registration for

- **Users (resource providers)**
- **Resources (libraries, directories/catalogues, models, simulations, data, metadata, algorithms, tools, and subject matter experts)**
  - **URLs**
  - **CM tags**
  - **MIME/resource types/viewers**
  - **Release criteria**
  - **Security restriction**
- **Users (resource consumers), consumer groups, and passwords**
- **Information Domains and associated taxonomies**
- **Nodes and administrators**

MSRR Registration Functions

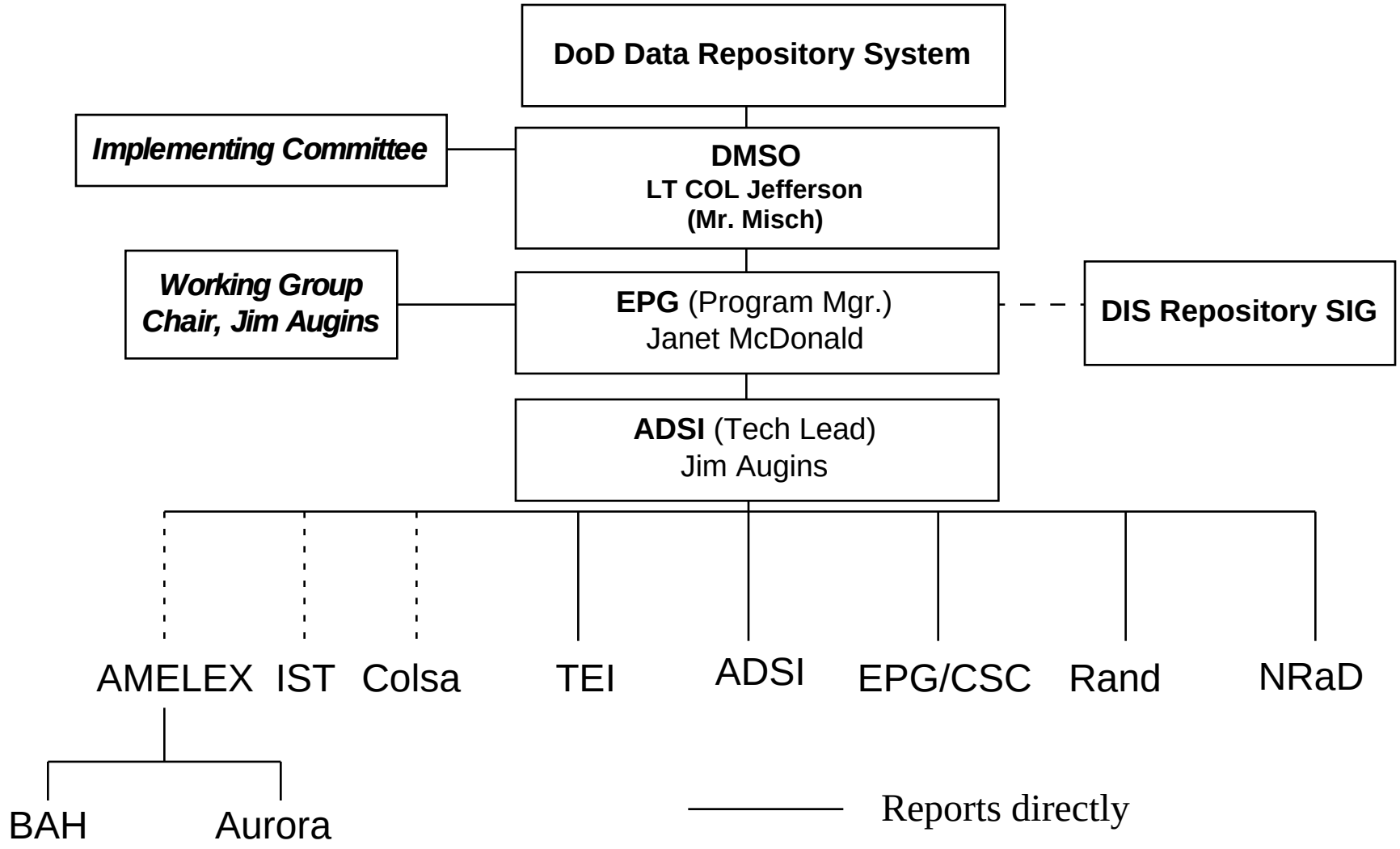
DMSO

The MSRR provides the following registration functions

- Enforce resource provider release restrictions
- Authenticate and authorize users and their passwords
- Update the M&S taxonomy
- Maintain administrative records
- Check-in/out selected resources
- Track resource orders
- Compile usage statistics
- Generate reports

MSRR Management Organization

DMSO



MSRR Strategy

DMSO

- **Unclassified nodes**
  - **Services (4)**
    - **Army installation complete - on line registered 30 May**
    - **Air Force (30 Sep)**
    - **Marines (30 Sep)**
    - **Navy will use existing unclas infrastructure**
  - **JSIMS (31 Jul)**
  - **DMSO (available now)**
  - **JDBE (available now)**
  - **MSOSA (available now)**
  - **DIS (available now)**
  - **MEL (31 Aug)**

continued

CMSRR Strategy

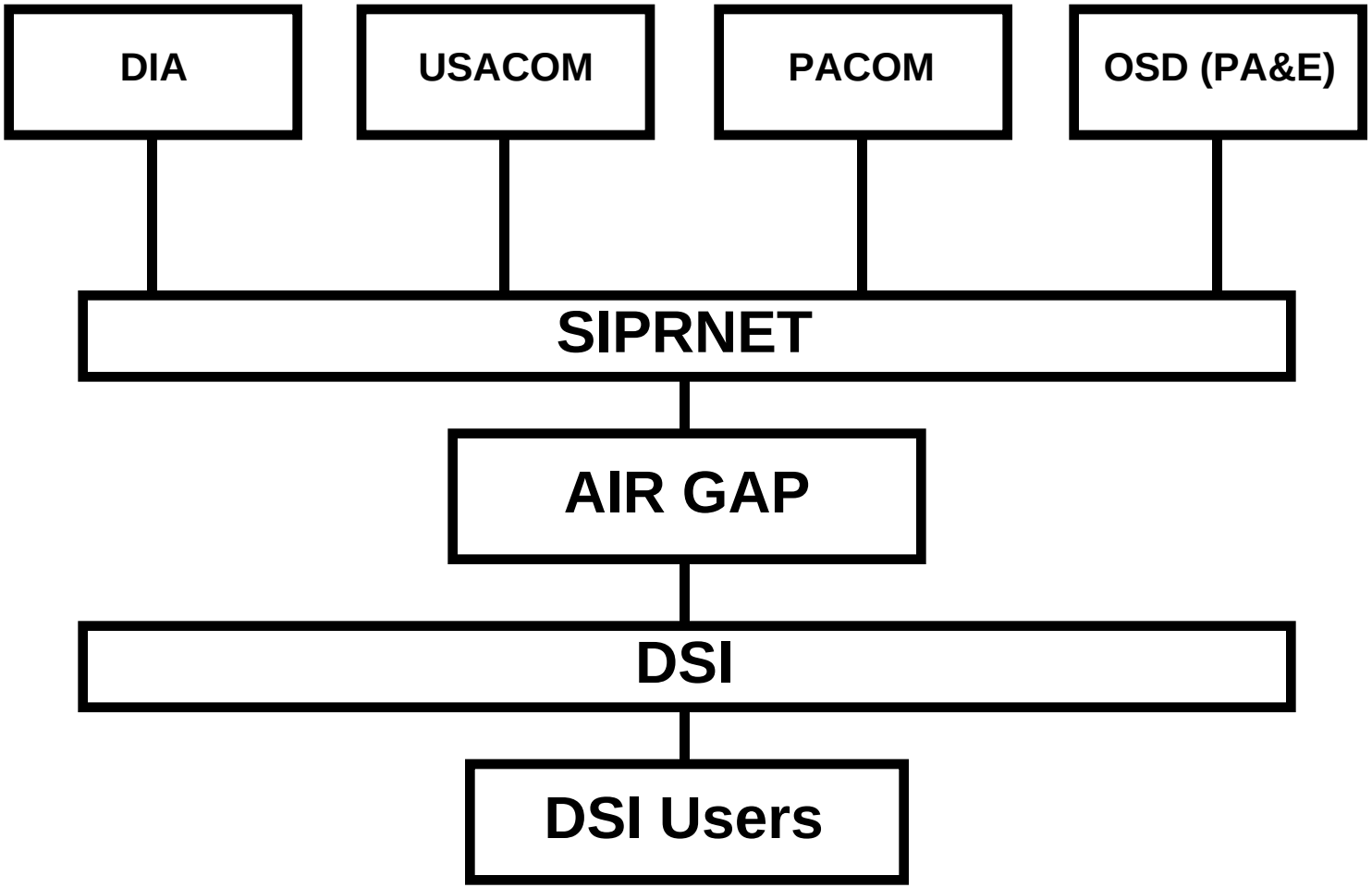
DMSO

Classified Nodes

- Working toward an initial implementation NLT Jan 97
  - NRaD/EPG development Node Sites
  - Phase one DBs identified
    - USACOM, PACOM, OSD (PA&E), DIA
  - MEL (possible)
- Initial Architecture Design being Worked
  - SIPRNET based for phase one
  - Initial DSI connectivity in phase one (Air Gap)
- DB accessibility via translators as opposed to “mediation” technologies
  - Immature status; consider later as technology is proven

Phase One CMSRR

DMSO



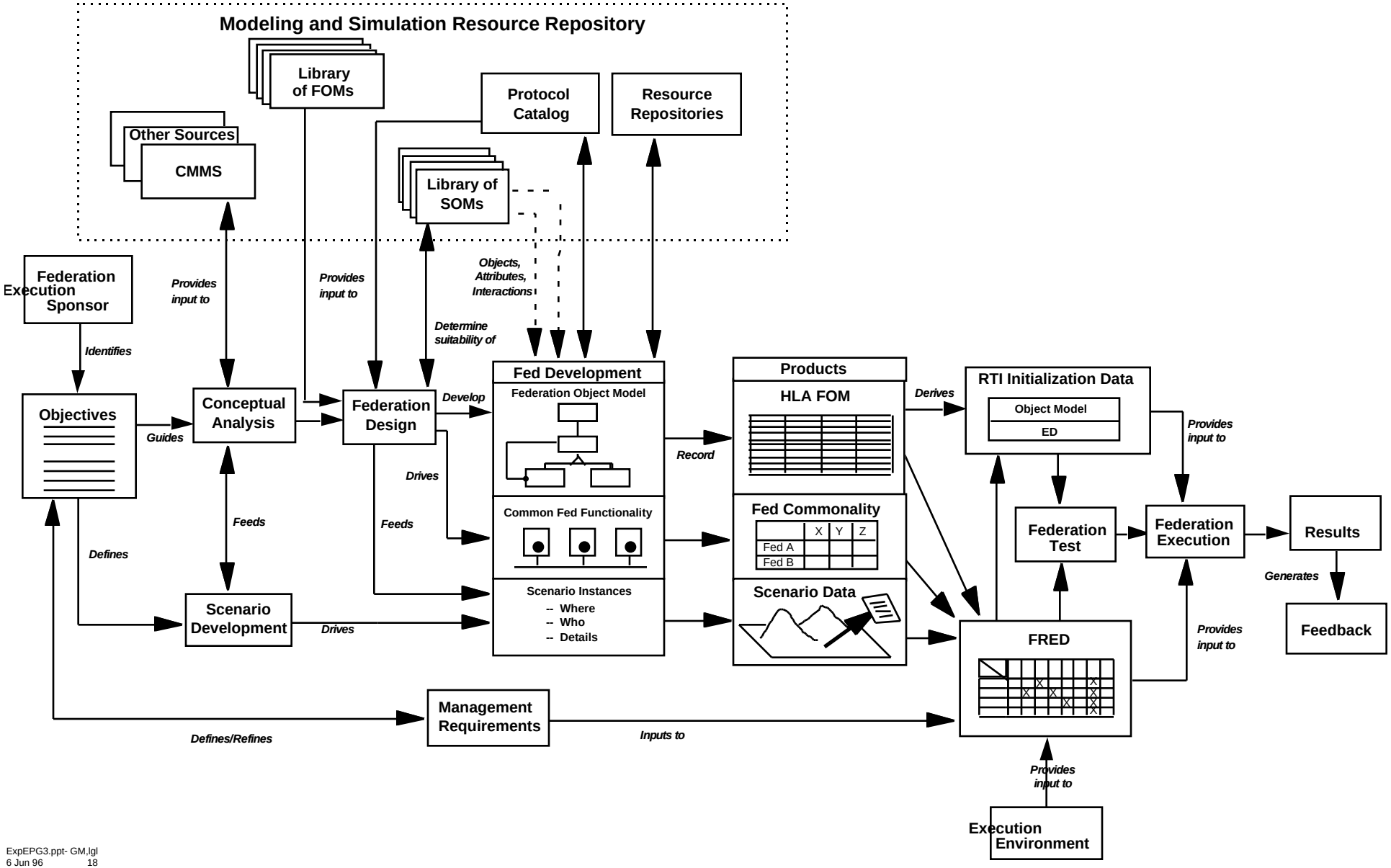
Summary

DMSO

- MSRR leverages existing physical assets
- MSRR adds a complete infrastructure of services
- Will provide the user with enhanced ability to locate and use quality data and other products

Example Use Case

DMSO



Backup Slides

DMSO

User Registration

DMSO

- **User Registration**
  - **Initial: Simple password and basic access to the MSRR**
    - **Registration database, announcements, newsgroups, etc.**
    - **Access privledges to specific, restricted items, controlled at the server where the items are hosted**
  - **Projected: Basic access, plus -**
    - **Cross MSRR access adjudicated via the registration database**
    - **Updated via info domain coordinator and registrar software**

Initial Domain Registration

DMSO

- Information domain coordinator is appointed
- Conducts domain analysis
  - Standard methodology
  - Standard tool (COTS - identification pending)
- Builds a conceptual model (product nr. 1)
  - Taxonomy (MSRR provides baseline)
  - Entity relationships
- Identifies physical resources related to the domain
  - Reviews resources for quality profile
    - MSRR wide profile
    - Domain specific profile
  - Mapped to authoritative data sources (registered)

continued

Initial Domain Registration (cont'd)

DMSO

continued

- Maps physical resources into conceptual model (product nr. 2)
- Maps physical resources to URLs (product nr. 3)
- Transmits products to the MSRR registrar
- Registrar registers new domain
  - Modifies registration database
    - Standard methodology and tools promote rapid migration of IDC product(s) into MSRR database(s)
  - Tests links
  - Advertises new domain

Item/Resource Registration (owner)

DMSO

- Accesses registration form on MSRR home page
- Requests registration of resource, to registrar, via form driven questionnaire
  - Identifies resource (standard taxonomy available)
  - Nominates to one or more domains
  - Specifies quality profile
    - General
    - Domain specific may require follow up depending on domain assignment
  - Provides physical location and URL
  - Specifies access restrictions

Item/Resource Registration (registrar)

DMSO

- Verifies MSRR quality profile
- Verifies ADS relationship
- Nominates to appropriate domain coordinator(s)

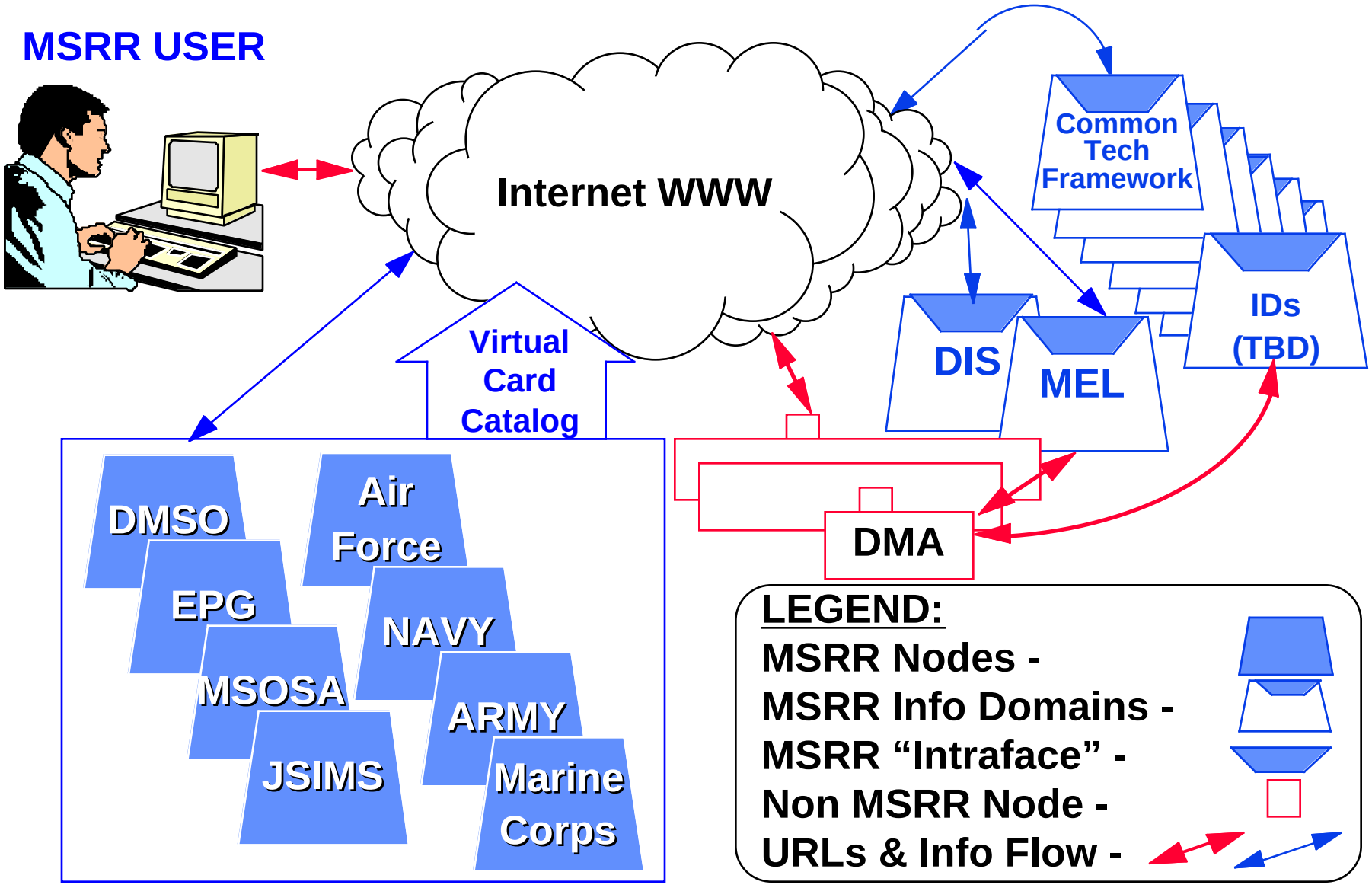
Item/Resource Registration (IDC)

DMSO

- Receives nominations from registrar
- Verifies domain specific quality profile
- Maps physical resources into conceptual model (product nr. 2)
- Maps physical resources to URLs (product nr. 3)
- Transmits products to the MSRR registrar

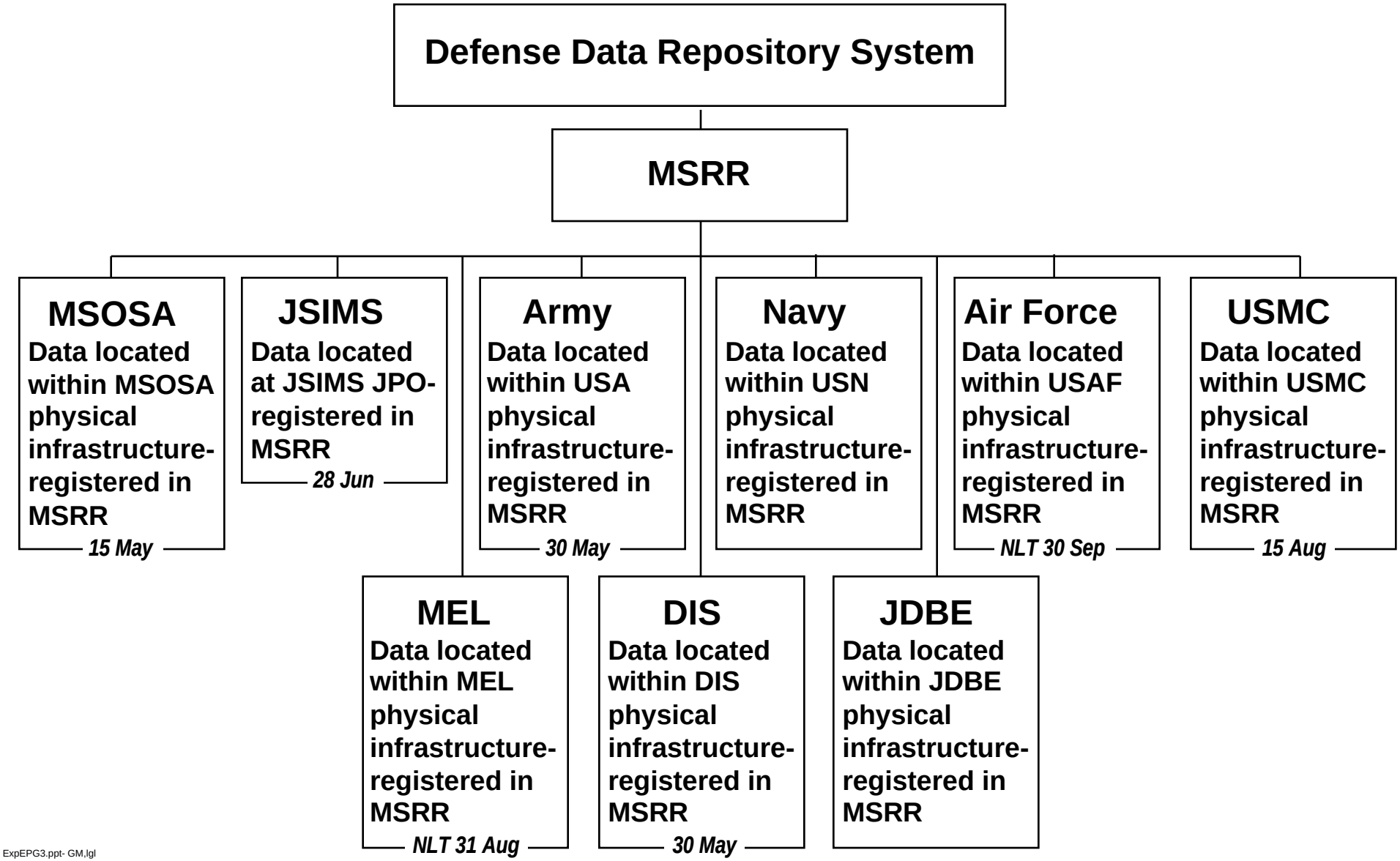
Distributed Network of Information Resources

DMSO



MSRR End of FY96 Snapshot

DMSO



M&S Directories

DMSO

- Originated as a DoD wide catalog of models and simulations
- Based on a data model currently maintained for the M&S FDAd
- Desire is for a DoD wide, distributed M&S catalog, maintained by model sponsors